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(54) **Method and tubular body for raising plants**

(57) The invention relates to a method for raising plants (4) rooted in a ball of cultivating material. The plant is enclosed in an at least substantially shape-retaining tubular body (1), whose upper edge (6) is provided with a pattern of recessed portions (8). The tubular body is preferably placed around a pot (3) containing the ball of cultivating material, with branches (9) of the plant growing through the recessed portions in the upper edge, being supported on the upper edge.

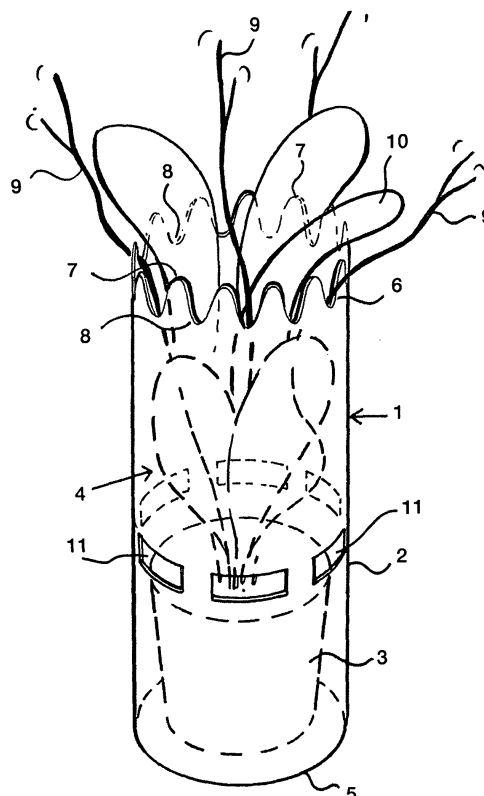


Fig. 1

Description

[0001] The invention, according to a first aspect thereof, relates to a method for raising plants rooted in a ball of cultivating material in a container, wherein the plant is enclosed in an at least substantially shape-retaining tubular body. It is possible to place the tubular body around (part of) the ball of cultivating material when the "plant" is just a seed, after which the plant grows in the space enclosed by the tubular body. The tubular body may be a separate body, which is or will be attached to the container or which is or will be placed round the container. The tubular body may also form an integral part of the container, however, in which case the container extends to above the ball of cultivating material.

[0002] Plants are generally raised together in large numbers, each plant being rooted in a ball of cultivating material, which is usually contained in a pot. The plants are generally spaced fairly close together. A problem that occurs in such a situation is that branches and leaves of plants adjacent to each other may become intertwined, which makes it difficult to separate the plants and which may lead to branches and leaves being damaged and/or breaking off, which has an adverse effect on the plant quality. To eliminate this problem, it is known to enclose the plant in a tubular body. Thus the branches of the plant can only tilt outwards to a limited extent. With a number of plants, such as the phalaenopsis, a leafless branch, also called stalk, grows separately from the leaf under the leaf. When the leaf grows over the edge of the tubular body, it will rest on the upper edge of the tubular body. Subsequently there will be hardly if any room for a stalk developing under said leaf to grow between the upper edge of the tubular body and the leaf. This leads to an increased risk of deformation of the stalk.

[0003] The object of the invention is to provide a method for raising plants by means of which this drawback of the conventional method can be overcome.

[0004] According to the invention, this object can be accomplished in that the tubular body comprises an upper edge that faces away from the ball of cultivating material in the position of use, in which recessed portions are provided, with branches of the plant growing through the space provided by recessed portions in the upper edge to beyond the upper edge of the tubular body. The recessed portions in the upper edge thus provide a space for a branch, or stalk, between the recessed portion of the upper edge and a leaf resting on (a higher portion of) the upper edge. The centre-to-centre distance between adjacent recessed portions is preferably 0.5 - 5 cm, furthermore preferably at least 0.75 cm and/or at most 2.5 cm. Also the distance in vertical direction between the upper edge at the location of a raised portion and the upper edge at the location of a recessed portion is preferably 0.2 - 10 cm, furthermore at least 0.3 and/or at most 5 cm.

[0005] The invention preferably relates to a method for raising a phalaenopsis, or at least a phalaenopsis-like

plant. With such a plant, separate leaves and leafless stalks grow from a stem rooted in the ball of cultivating material. When a leaf is fully grown and rests on the upper edge of the tubular body, a leafless stalk developing between the leaf and the tubular body can grow through a recessed portion in the upper edge to beyond the upper edge of the body without, or at least to a significantly lesser extent being impeded, by the leaf. As a result, the stalk will grow straight, or at least straighter than will be the case when a tubular body having a flat upper edge is used, resulting in a higher plant value.

[0006] In a preferred embodiment, the tubular body is clamped over the upper edge of a pot functioning as a container for the ball of cultivating material. The tubular body extends upwards like a collar from the upper edge of the pot. Although this is not necessary, this has the advantage that the tubular body is supported by the pot, so that it will retain the desired vertical orientation more easily, even when leaves of the plant rest on the upper edge of the tubular body.

[0007] In an alternative embodiment, the tubular body is placed on a supporting surface and around a pot containing the ball of cultivating material. The pot and at least part of the plant are enclosed by the tubular body in this embodiment.

[0008] In a preferred embodiment of the present invention, the upper edge of the tubular body has a corrugated pattern of recessed and raised portions, and branches of the plant grow through valleys of the corrugated pattern that form said recessed portions. A corrugated pattern is a pattern that is easy to form, avoiding acute angles. The presence of such acute angles might lead to damage to a branch or cause the tubular body to tear.

[0009] Alternatively, the upper edge of the tubular body comprises a serrated pattern of adjacent recessed and raised portions, and branches of the plant grow through spaces provided by the recessed portions of the separated pattern. A serration provides more space for a branch to grow under a leaf resting on the upper edge of the tubular body than a uniformly corrugated pattern.

[0010] In another alternative embodiment of the invention, the upper edge of the tubular body comprises a crenellated pattern of adjacent recessed and raised portions, and branches of the plant grow through spaces provided by the lower portions of the crenellated pattern. In this embodiment, a recessed portion provides even more space under a leaf resting on the upper edge of the tubular body.

[0011] To train the branches of a plant towards the recessed portions, the inner surface of the tubular body facing the plant is preferably provided with guide surfaces which extend at least substantially in vertical direction in the position of use of the tubular body and which, seen in cross-sectional view of the tubular body, include an angle with a line enveloping the outer side of the tubular body. The term "enveloping line" is still to be understood to mean a line which extends along the outer parts of the tubular body.

[0012] Preferably, aeration means are provided for allowing an air flow from a location near the underside of the tubular body upwards through the interior of the tubular body. This stimulates the growth of a plant rooted in the cultivating material.

[0013] In a preferred embodiment, the aeration means comprise at least one hole in the circumferential wall of the tubular body, and the tubular body is placed around the pot and the plant in such a manner that said at least one hole is located above the edge of the pot. Air can thus flow into the tubular body through said at least one hole and upwards along the plant. This stimulates the growth of the plant. This aspect, incidentally, can also be used independently of the principal idea of the present invention and be protected as a method for raising plants rooted in a ball of cultivating material, wherein the plant is enclosed in an at least substantially shape-retaining tubular body provided with at least one hole in the circumferential wall thereof, which tubular body is placed around the pot and the plant in such a manner that said at least one hole is located above the edge of the pot so as to allow an airflow upwards from a location near the bottom side of the tubular body through the interior of the tubular body.

[0014] The present invention, according to a second aspect thereof, relates to an at least substantially shape-retaining body intended for use in raising plants according to the first aspect of the present invention. The tubular body solves problems corresponding to the first aspect of the present invention in a corresponding manner, and to that end comprises an upper edge facing away from a ball of cultivating material, at least in the position of use, which upper edge is provided with recessed portions.

[0015] In preferred embodiments of the present invention, the upper edge of the tubular body comprises a corrugated, serrated or crenellated pattern of adjacent recessed and raised portions.

[0016] In addition, the inner surface of the tubular body may be provided with guide surfaces which extend at least substantially in vertical direction and which, seen in cross-sectional view of the tubular body, include an angle with a line enveloping the outer side of the tubular body.

[0017] It is preferable in that case if the central part of a guide extends to, or in the direction of, a recessed portion in the upper edge. The guide surfaces are thus suitable for training a growing branch in the direction of a recessed portion in the upper edge.

[0018] In order to make it possible to shorten the tubular body, it is preferable if the tubular body is provided with a weakening line extending transversely to the longitudinal axis thereof, such that the tubular body can be separated into two parts.

[0019] In a preferred embodiment, the tubular body has an at least substantially circular cross-section.

[0020] Alternatively, the tubular body may exhibit an at least substantially polygonal cross-section, preferably

a hexagonal or octagonal cross-section.

[0021] The tubular body can be formed in a simple manner if the tubular body is folded from a sheet-like material.

5 **[0022]** The tubular body is preferably provided with at least one hole in its circumferential wall, such that said at least one hole is located above the upper edge of a pot containing a plant. In this way a better aeration of the plant in question can be realised. This aspect of the invention can also be used and independently of the first aspect of the present invention and be protected as an at least substantially shape-retaining tubular body intended for use with a method for raising plants rooted in a ball of cultivating material, wherein the plant is enclosed in an at least substantially shape-retaining tubular body, said substantially tubular body comprising at least one hole in its circumferential wall, such that in use said at least one hole is located above the upper edge of a pot in which a plant is contained.

20 **[0023]** Tubular bodies for raising plants in which a window is present in the circumferential wall are known, to be sure, but in the case of the known tubular body the window is located at the level of the pot. Said window functions to make it possible to read a bar code present on the pot and hardly leads to a better aeration, if at all.

25 **[0024]** The present invention will be explained in more detail hereinafter on the basis of exemplary embodiments shown in the appended drawings, in which:

30 Figure 1 is a perspective side view of a sleeve functioning as a tubular body according to the present invention, which encloses a plant contained in a pot; Figure 2 is a perspective side view of an alternative embodiment of a sleeve according to the present invention;

35 Figure 3 is a perspective side view of another alternative embodiment of a sleeve according to the present invention;

40 Figure 3a is a view of the underside of the sleeve of figure 3;

Figure 4 is a perspective view of a sleeve according to the present invention, which has a ribbed inner surface;

45 Figure 4a is a more detailed view of the upper side of the sleeve of figure 4;

Figure 5 is a perspective view of a pot provided with a collar according to the present invention.

50 **[0025]** The sleeve 1 according to the present invention shown in figure 1, which is preferably made of a transparent plastic material, comprises a cylindrical wall 2 and has an inner circumference which substantially corresponds to the outer circumference of a pot 3 in which a plant 4 is raised and around which the sleeve 1 is provided. The sleeve 1 is supported with a flat lower edge 5 on a supporting surface (not shown) on which the pot 3 is placed. At its upper end, the sleeve 1 has a circumferential edge 6 exhibiting a corrugated pattern, so that

a pattern of adjacent raised portions 7 and recessed portions 8 is formed. Stalks 9 extend through a number of recessed portions 8 of the circumferential edge 6, which stalks are held in place in said recessed portions. Leaves 10 rest on raised portions 7 of the upper circumferential edge 6. Aeration holes 11 are provided in the sleeve 1 just above the upper edge of the pot 3, through which holes air can flow from outside the sleeve 1 into the sleeve 1 and subsequently upwards along the plant 4.

[0026] Figure 2 shows an alternative embodiment of a sleeve 21 according to the present invention, which comprises a wall 22 having a hexagonal cross-section. Also in this case, the inner circumference of the sleeve 21 substantially corresponds to the outer circumference of a pot 23 in which a plant 24 is being raised. The sleeve 21 has a flat lower edge 25 and a serrated upper circumferential edge 26. The serrations form alternating raised portions 27 and recessed portions 28. Stalks 29 grow through a number of recessed portions 28 under respective leaves 32 resting on the separated circumferential edge 26. Numeral 30 indicates a seam where overlapping portions of the sheet of a transparent plastic forming the sleeve 21 are joined together. Chain-dotted line 31 indicates a weakening line, along which the sleeve 1 can be torn into two parts.

[0027] Figure 3 shows yet another embodiment of a sleeve 41 according to the present invention, which comprises a wall 42 having a hexagonal cross-section. The wall 42 is folded inwards at the bottom end, forming a flat bottom 45 (see figure 3a), on which a pot 43 containing plants to be raised is placed. The circumferential edge 46 at the upper end of the sleeve 41 is crenellated, so that recessed portions 48 extending substantially horizontally over a short distance are bounded by the upright edge 51, which also bounds raised portions 47. Through said recessed portions 48, stalks 49 of the plant 44 to be raised extend under leaves 50 resting on the raised portions 47. In figure 3a the flat bottom 45 of the sleeve 41 is shown in more detail. From the circumferential lines 52 it can be derived how the bottom of the sleeve 41 was folded from a sheet-like material.

[0028] Figure 4 shows a sleeve 61 having a hexagonal wall 62 which is provided with corrugated ribs 70 on the inner side (see also figure 4a). The corrugated ribs 70 of the inner wall 72 form guide surfaces 74, which extend vertically in the vertical position of use of the sleeve 61 that is shown in figures 4, 4a. Seen in cross-sectional view of the sleeve 61, said guide surfaces 74 include an angle with a line enveloping the outer side of the sleeve, which line is formed by the outer circumference of the sleeve 61. For use, the sleeve 61 is placed around a pot 63 containing a plant 64. Although the ribs 70 extend up to the upper edge 66 in figures 4, 4a, the ribs 70 may also terminate some distance below said upper edge. Since two adjacent ribs 70 meet in the centre of the recessed portions 68 (and also, but this is less relevant in this context, in the centre of the raised portions 67), a growing stalk is trained to a recessed portion 68 by the

guide surfaces 74 of two adjacent ribs 70.

[0029] Figure 5 shows a pot 83 in which a plant (not shown) is raised. A collar 81 is clamped around the upper edge of the pot 83. The collar 81 has a crenellated upper edge 86 comparable to that of the sleeve 61. Aeration holes 84 are provided in the wall 82.

[0030] In the appended figures and the description above, only a few exemplary embodiments of sleeves according to the present invention are shown and described, respectively. It will be understood that many variants, which may or may not be obvious to those skilled in the art, are conceivable within the scope of the present invention, which is defined by the appended claims. Thus, a sleeve may be made of a material in the form of an extruded due rather than a sheet-like material. Furthermore, a cross-sectional shape of the sleeve other than a circular or a hexagonal cross-sectional shape may be used. A sleeve need not extend to the bottom of the pot. Furthermore, the lower edge of the sleeve need not be straight, it may also have a profile comparable to that of the upper edge, for example. The height of the sleeve and the collar may be adapted to the plant that is raised in the pot, it may vary from 8 cm to 30 cm. The aeration holes shown herein are configured as relatively wide windows extending over a relatively small height. Also differently shaped windows may be quite suitable for enhancing an air flow along the plant. The windows might also be located at a different position in the lower part of a sleeve or a collar, for example in the connecting piece between the clamping edge and the wider tube of a sleeve.

Claims

1. A method for raising plants rooted in a ball of cultivating material in a container, wherein the plant is enclosed in an at least substantially shape-retaining tubular body, **characterised in that** the tubular body comprises an upper edge facing away from the ball of cultivating material in the position of use, in which recessed portions are provided, with branches of the plant growing through the space provided by recessed portions in the upper edge to beyond the upper edge of the tubular body.
2. A method according to claim 1, **characterised in that** said plant is a phalaenopsis, or at least a phalaenopsis-like plant.
3. A method according to claim 1 or 2, **characterised in that** the tubular body is clamped over the upper edge of a pot functioning as a container for the ball of cultivating material.
4. A method according to claim 1 or 2, **characterised in that** the tubular body is placed on a supporting surface and around a pot containing the ball of cul-

tivating material.

5. A method according to one or more of the preceding claims, **characterised in that** the upper edge of the tubular body has a corrugated pattern of recessed and raised portions, and branches of the plant grow through valleys of the corrugated pattern that form said recessed portions. 5
6. A method according to one or more of claims 1-4, **characterised in that** the upper edge of the tubular body comprises a serrated pattern of adjacent recessed and raised portions, and branches of the plant grow through spaces provided by the recessed portions of the separated pattern. 10
7. A method according to one or more of claims 1-4, **characterised in that** the upper edge of the tubular body comprises a crenellated pattern of adjacent recessed and raised portions, and branches of the plant grow through spaces provided by the lower portions of the crenellated pattern. 20
8. A method according to one or more of the preceding claims, **characterised in that** the inner surface of the tubular body facing the plant is provided with guide surfaces which extend at least substantially in vertical direction in the position of use of the tubular body and which, seen in cross-sectional view of the tubular body, include an angle with a line enveloping the outer side of the tubular body. 25 30
9. A method according to any one of the preceding claims, **characterised in that** aeration means are provided for allowing an air flow from a location near the underside of the tubular body upwards through the interior of the tubular body. 35
10. A method according to claim 8, **characterised in that** said aeration means comprise at least one hole in the circumferential wall of the tubular body, and the tubular body is placed around the pot and the plant in such a manner that said at least one hole is located above the edge of the pot. 40 45
11. A tubular body, in particular intended for use in a method according to any one of the preceding claims, wherein said tubular body is at least substantially shape-retaining and comprises an upper edge that faces away from a ball of cultivating material, at least in the position of use, which upper edge is provided with recessed portions, **characterised in that** the inner surface of the tubular body is provided with guide surfaces which extend at least substantially in vertical direction and which, seen in cross-sectional view of the tubular body, include an angle with a line enveloping the outer side of the tubular body. 50 55
12. A tubular body according to claim 11, **characterised in that** the central part of a guide extends to or in the direction of a recessed portion in the upper edge.
13. A tubular body according to either one or both of claims 11-12, **characterised in that** the tubular body is provided with a weakening line extending transversely to the longitudinal axis thereof, such that the tubular body can be separated into two parts.
14. A tubular body according to one or more of claims 11-13, **characterised in that** at least one hole is provided in the circumferential wall, such that in use said at least one hole is located above the upper edge of a pot containing a plant.

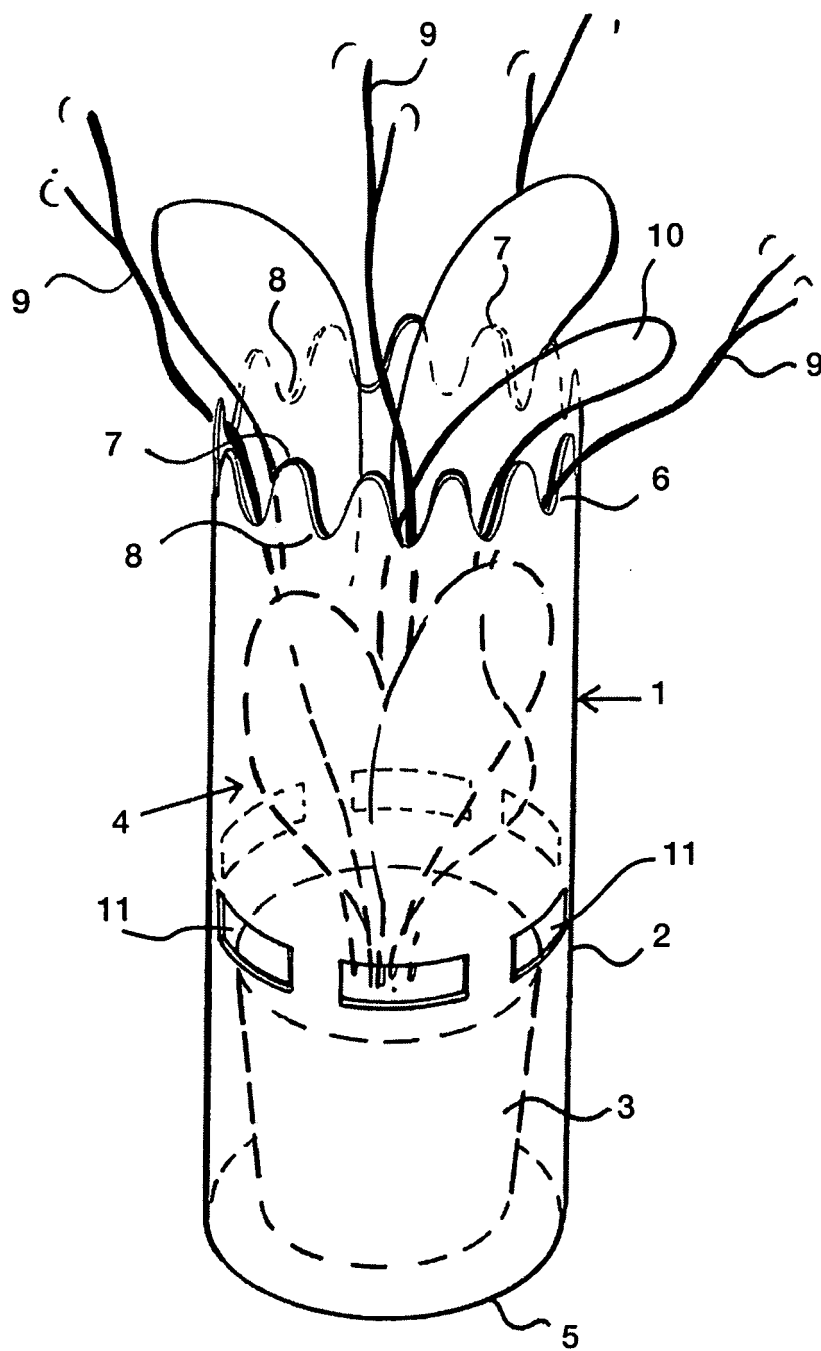


Fig. 1

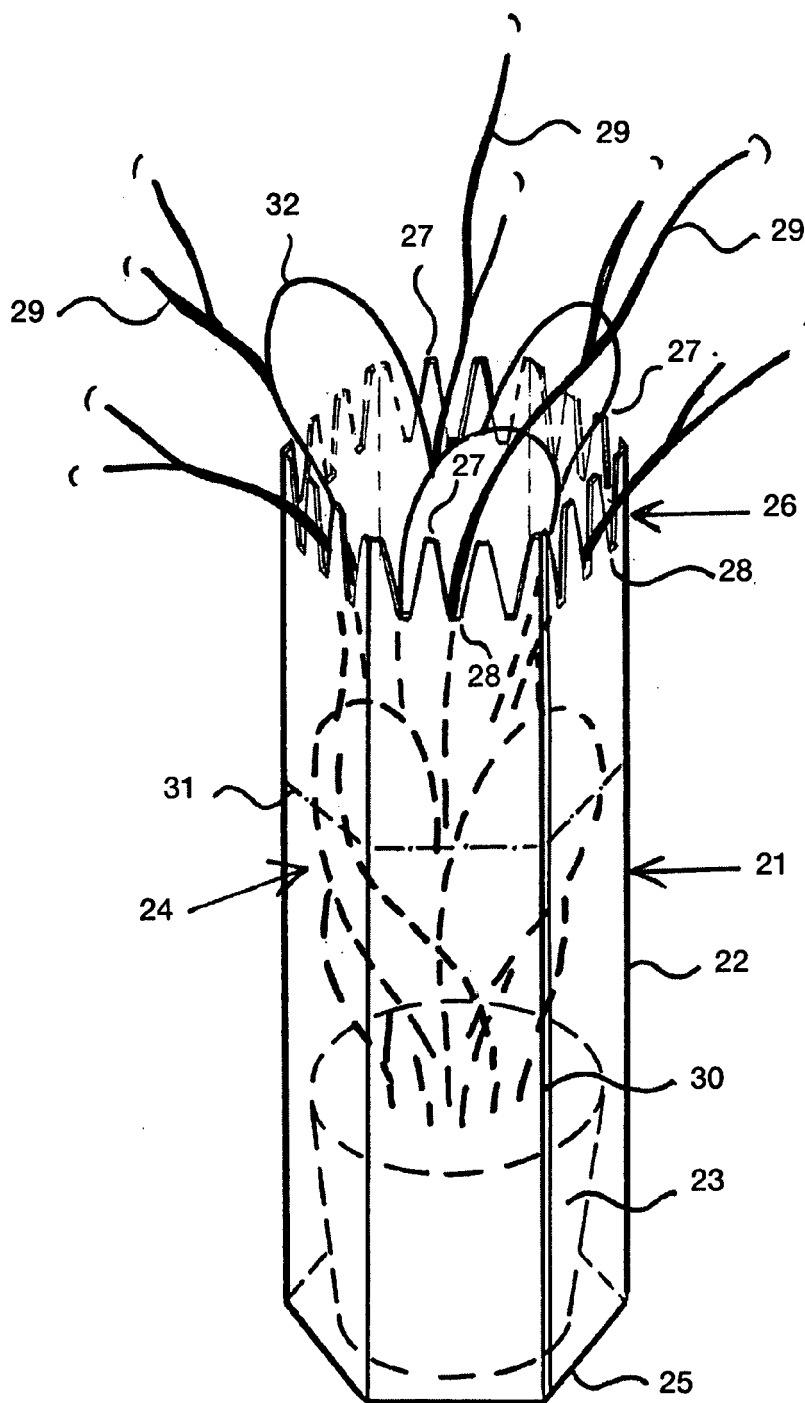


Fig. 2

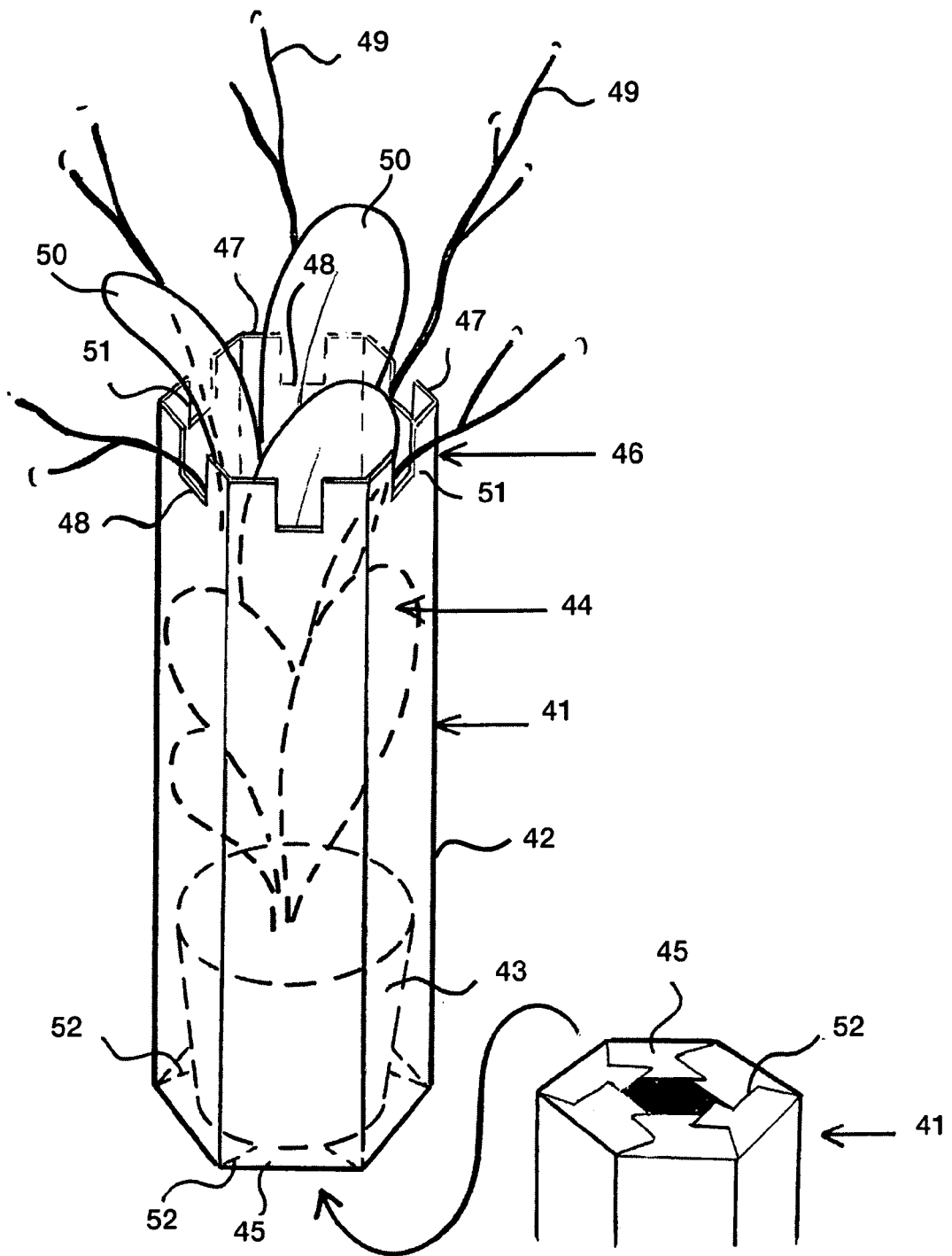
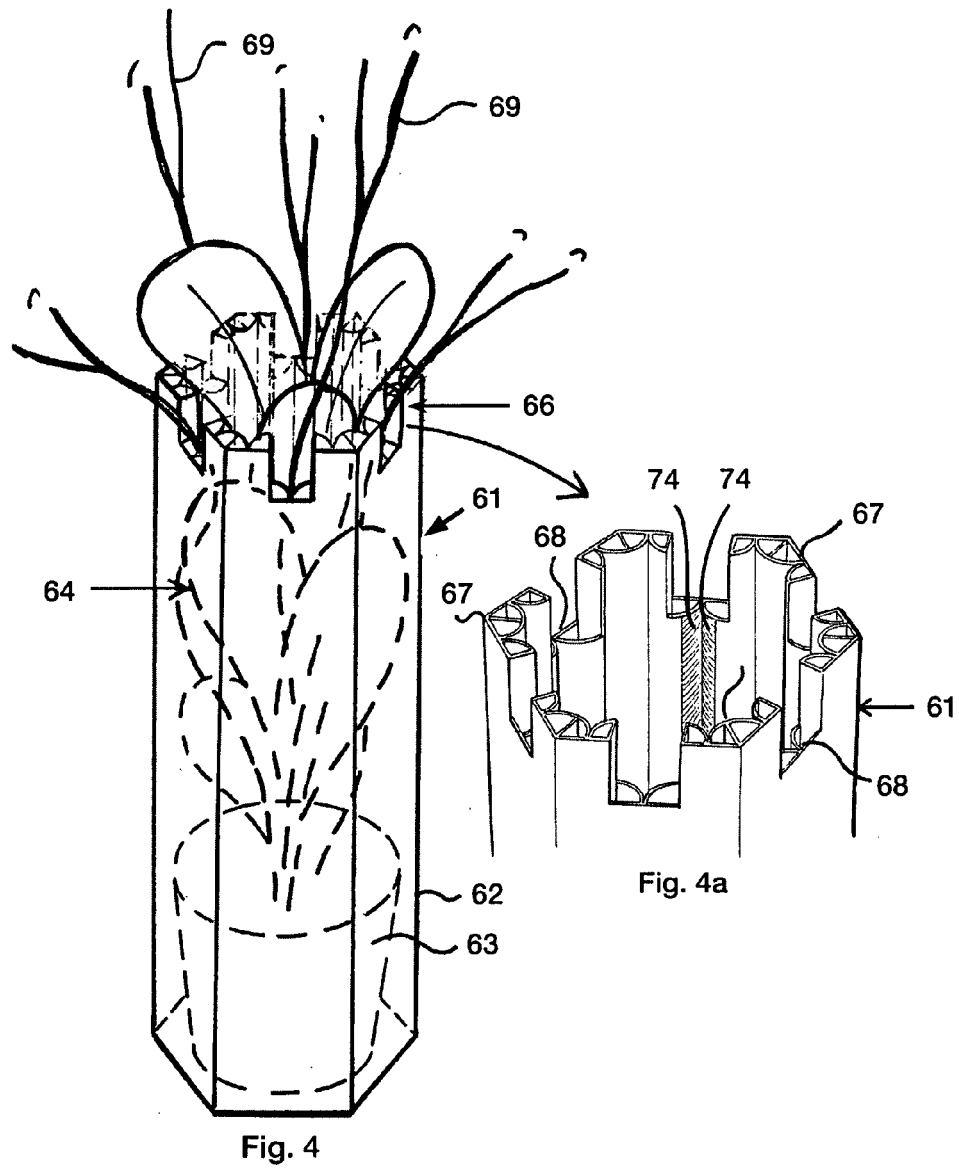
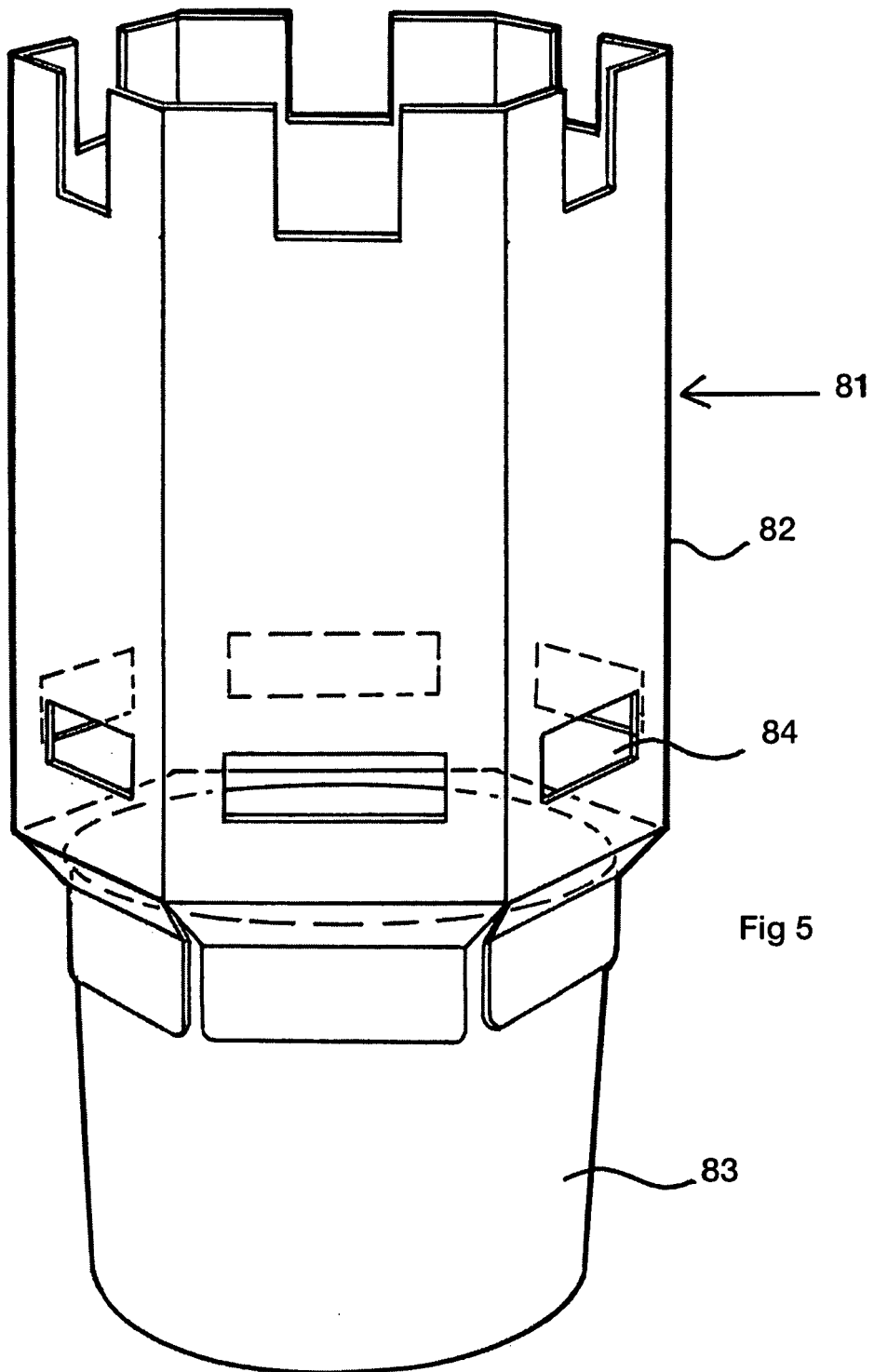


Fig. 3a

Fig. 3







EUROPEAN SEARCH REPORT

Application Number
EP 10 00 4432

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The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 26 July 2010	Examiner Espeel, Els
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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